Notes on the Genus *Utetheisa* Hübner (Lepidoptera : Arctiidae) in the Western Pacific with Larval Descriptions

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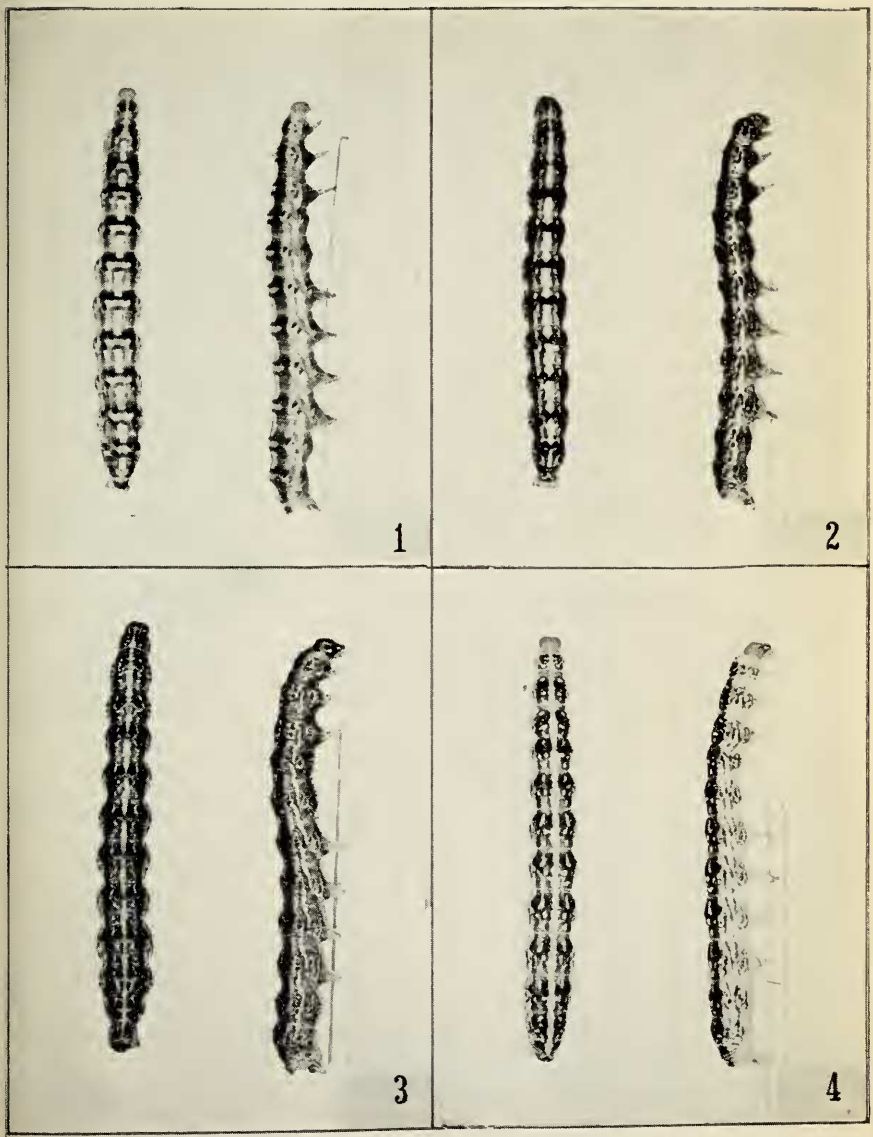
Following the discussion of the Fijian species of *Utetheisa* Hubner by G. S. Robinson (1971) we obtained and bred larvae of *Utetheisa lotrix stigmata* Rothschild, *Utetheisa pulchelloides marshallorum* Rothschild and *Utetheisa clareae* Robinson from Fiji. *Lotrix* specimens were from Tavua, northern Viti Levu, *pulchelloides* from Singatoka, southern Viti Levu and *clareae* from Savusavu, southern Vanua Levu. In June 1971, G. S. Robinson obtained larvae of *Utetheisa salomonis* Rothschild from the southern coast of Efate, New Hebrides. These were bred both in the New Hebrides and in Fiji. Alcohol-preserved specimens and inflated larval skins of all species have been prepared. The larvae, illustrated in dorsal and lateral view in the plate, are of a pattern consistent within species and markedly different between species. They can be identified as follows:

U. pulchelloides marshallorum Rothschild (plate X, fig. 2)
Base colour bright lemon yellow with black patterning. Dorsal stripe interrupted by single black bands. Head dark tan.
Foodplants: Boraginaceae especially *Messerschmidia argentea*. Feeds on upper epidermis of leaves.

U. salomonis Rothschild (plate X, fig. 3)
Base colour orange-brown with black patterning. Dorsal stripe not interrupted, though it carries bands of darker ground colour at the centre of each segment. Head black or brownish black.
Foodplants: Boraginaceae especially *Messerschmidia argentea*. Feeds on upper epidermis of leaves.

U. clareae Robinson (plate X, fig. 4)
Base colour pale lemon yellow with black patterning. Dorsal stripe not interrupted. Head light tan.
Foodplants: Boraginaceae especially *Messerschmidia argentea*. Feeds on upper epidermis of leaves.

U. lotrix stigmata Rothschild (plate X, fig. 1)
Base colour lemon yellow with black and orange patterning. Dorsal stripe interrupted by pairs of black bands with an orange band between. Head light tan.
Foodplants: Papilionaceae especially *Crotalaria* spp. Feeds on leaves (but see footnote).



1. *Utetheisa lotrix stigmata* Roths.
2. *Utetheisa pulchelloides marshallorum* Roths.
3. *Utetheisa salomonis* Roths.
4. *Utetheisa clareae* Robinson

Dorsal and lateral views of larvae ×2

The distribution and development of these four species may be explained in the western Pacific area by the distribution of the foodplants. *Crotalaria* and associated Papilionaceae are common in all the islands and well spread across lowland areas especially where these are cultivated. Accordingly any dispersal of *U. lotrix* can find a ready home and if blown from one area to another by strong winds has no difficulty in finding supplies of foodplant.

The three remaining species find themselves in a very different situation. The only endemic species of the Boraginaceae is *Messerschmidia argentea* (Linn. f.) Johnston (*Tournefortia argentea* Linn. f.) and the distribution of this plant is very specialised. It occurs only at high tide mark, usually on the prevailing windward side of islands, where there is coral sand. The latter substrate appears to be necessary for seed germination.

Messerschmidia thus forms a very thin interrupted band along limited stretches of coast and a dispersal of any of the three Boraginaceae-feeding species has therefore a limited chance of reaching the foodplant and if blown from it, little chance of returning to it or coming across a new supply.

Observation of the colonies of each of these three species shows them to be consistently sedentary in behaviour. The imagines rest always on the foodplant and if disturbed fly into the wind in a circle and return to it and it would appear that this specialised behaviour is essential to their survival.

This behaviour of course ensures that each colony tends to become increasingly inbred and to retain only sedentary individuals and the likelihood of speciation in the Boraginaceae-feeding group could therefore be expected to be high and this is in fact the case.

U. lotrix on the other hand has entirely different behaviour. The imagines settle on all types of vegetation and when disturbed fly widely to leeward and accordingly the colonies which are a feature of the Boraginaceae—feeding species do not exist in *lotrix* which is widely spread and therefore unlikely to speciate. In fact only one subspecies of *lotrix* has been described and we are in some doubt as to whether *stigmata* is consistently separable from typical *lotrix* as suggested by Jordan (1939).

Footnote: Swain (1971) states that *U. lotrix* feeds on seed-pods of *Crotalaria* and illustrates an undoubted larva of *lotrix* on a stem of *Crotalaria* below a damaged pod. The authors have never seen damage to seed-pods by *lotrix* even on stands of *Crotalaria* where infestation is very heavy. In captivity larvae cannot be induced to eat seed-pods even when given no other food. The larvae of the Hypsid species, *Argina cribaria* Clerck, might, with their orange and black bands, be mistaken when small for larvae of *lotrix* and these *do* damage seed-pods in exactly the manner shown in the illustration. It is possible that Swain's larva is an innocent bystander at the scene of another's crime.